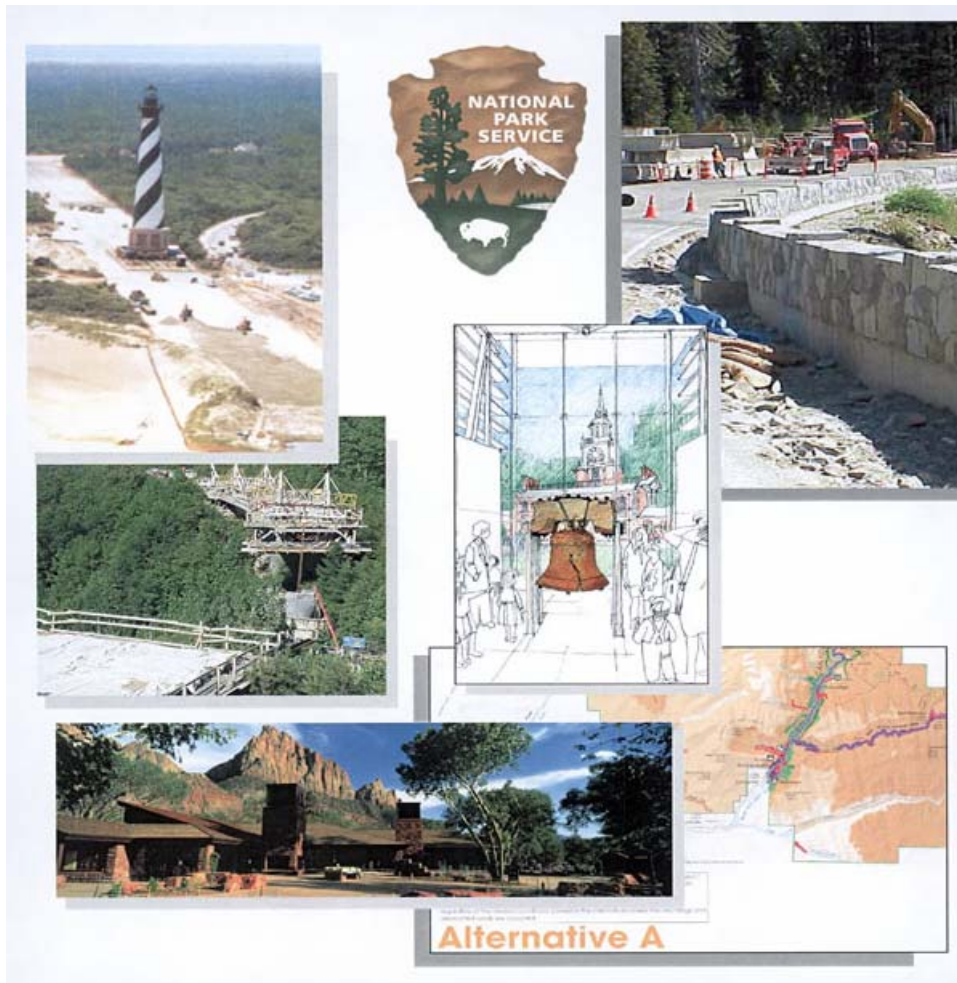


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Risk Management

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Risk Management Introduction

- Risk Management is identifying, analyzing and responding to risk.

Project Management Institute

- Risk Management focuses on exposure – the probability of loss or injury.

American Institute of Architects

- A measure of the probability and consequence of not achieving a defined project goal.

Project Management by Kerzner



Risk Management Course Objectives

At completion of course, participants will be able to:

- 1. Understand the purpose and value of risk management**
- 2. Recognize and apply risk management concepts**
- 3. Be able to identify risk and apply a qualitative risk assessment table**
- 4. Be aware of more complex tools used to assess risk and manage risk**
- 5. Know the five basic ways to manage risk**



Poor Excuses for Not Practicing Continuous Risk Management

- “I don’t know what the risks are.”
- “I prefer to deal with problems as they arise.”
- “I don’t have the time, the funding, or the staffing resources to manage project risks.”
- “I’d manage my risks if I had a tool to help me identify, document, analyze, prioritize, and report my risk data.”



1. Understand the purpose and value of risk management

- Risk Management is an essential best practice in sound project management.
 - It allows management to plan rather than react
 - It enables open and honest communication among all program/project stakeholders.
- **CPIC** Capital Planning Investment Control
 - Balance benefits against costs and risks

Good managers solve problems

And risk management is the way to identify and plan for problem solving.

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Capital Asset Plan – Risk Assessment

- Require identification of
 - Schedule
 - Costs; Initial and Life-Cycle
 - Technical Obsolescence
 - Feasibility
 - Reliability
 - Capability of Agency to Manage Investment
- CAP Requires
 - Description of Risk
 - Probability of Occurring
 - Strategy for Mitigation

CAPITAL ASSET PLAN AND BUSINESS CASE EXHIBIT 200

I. F. Risk Inventory and Assessment (All Assets)

During excavation and repairs to the subsurface drainage system, it is highly possible to find significant archaeological remains. However, requirements and funding for monitoring during drainage excavation and repairs will be part of this project. In addition excavations will be minimized to remain within the original utility trench where there is least potential to encounter archaeological remains.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of the date of this exhibit
2002-2003	Schedule And cost	Archaeology	For drainage system lines	Archaeological monitoring during construction allowance in budget	Early Archaeological survey was conducted in summer of 2002, but monitoring will continue during construction
2004-2006	Schedule and Cost	Multiple Construction Contracts	Low to Moderate	Schedule and coordination requirements in contracts	Schedules are being developed
2004-2006	Schedule and cost	Snow Storms during construction	Moderate	Schedule contingencies for bad weather	Schedule is being developed

1. What is the date of your risk management plan? (Need exact date e.g. MM/DD/YYYY)
09/11/2002

CAP's require you to demonstrate active management of risk

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DSC Constructability Checklist

A great example of Risk Management

CONSTRUCTABILITY CHECKLIST				
PARK:	PROJECT:	REVIEW ER:	PKG:	DATE:
ITEM #	DESCRIPTION	COMMENT	STATUS	
PERMITTING AND COMPLIANCE				
1	LIST REQUIRED PERMITS			
2	INDIVIDUAL PERMIT REQUIREMENTS			
3	STATE OR LOCAL CONTACTS			

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2. Recognize and apply risk management concepts

- Common steps to most Risk Management processes
- The AIA has a Risk Planning Table that incorporates these steps





3. Be able to identify risk and apply a qualitative risk assessment table

- What can go wrong with a DSC project?
- Not following intent of PMIS statement, the Green Book, and the project agreement (scope change)
- Cultural and natural resource concerns
- Quality of work (errors and omissions)
- Schedule and delays to FY obligation
- Change in staff at the A/E or the park

**1. Risk
Identification**





Initial Risk Analysis for DSC Projects

- Is the scope clear?
 - Careful review with PMIS statement, Green book, and project agreement.
- What are the compliance concerns?
 - Environmental Screening Form (ESF) is a critical tool to manage resource risks.
- Does the money match the scope?
 - Review the scope with the Class C estimate

2. Risk Analysis



Risk Planning & Reduction for Projects

- The AIA has five strategies to reduce risk:
 - Retain it
 - Abate it
 - Allocate it
 - Transfer it
 - Avoid it



3. Risk Planning



Risk Tracking for DSC Projects

- Monitor and update Risk Management qualitative tables.
- Schedule tracking – PM's currently do this through MS Project.
- Scope tracking and review comments.
- Remember to communicate what you track to the project team.



4. Risk Tracking

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Risk Identification for DSC Construction Projects

- Contract Modifications Study findings:

Design related changes (errors and omissions)	32%
Changed conditions	18%
Park requested changes	14%
Field Check-construction (inspection and survey issues)	12%

**5. Monitor
& Control**

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Risk Identification for DSC Construction Projects

- DSC CS now tracks sources for construction modifications

The screenshot displays the Microsoft Access database interface for the 'TbIPProclog1' database. The main window shows the 'Modification Log' form, which is divided into several sections:

- Contractor Information:** Contractor Name (2G Inc., d.b.a. 2G Construction), Contract Number (CO 8000 02-0904), Contract Action (Base Award Construction), Park Package (JODA 105), PM (Todd), COR (Lippert), CO (Keiscome), CS (Gertler), and Inv Ofc (DSC).
- Financial Summary:** Mod Percent (3.10%), Total to Net (75.90%), Net to Base (0.00%), Base Amt (\$0.00), Prog Amt (\$7,136,000.00), Award Dtd (6/25/2002), Award Amt (\$5,416,400.00), Total Mod Amt (\$167,885.70), Rev Contract Amt (\$5,584,285.70), Completion Dtd (5/9/2004), and Rev Compl Dtd.
- Modification Log Table:** A table with columns: Mod No, Mod Date, Mod Amount, Cause of Modification/Action, and Expanded Explanation of Cause of Modification. It lists four modifications with amounts ranging from \$25,554.72 to \$2,304.27.
- Total:** A summary row showing a total modification amount of \$167,885.70.
- Record:** A section for recording changes, including a 'Record' field with a value of 8.
- VERIFIED:** A section for verification, including a 'Value Engineering Change Proposal' and a 'Survey-Site Modifications-Variation Estimated Qty'.
- Notes:** A section for notes, including a 'NOTE' field.

The bottom of the window shows the Windows taskbar with various open applications and the system clock.

**5. Monitor
& Control**



Qualitative Risk Planning Table

Project Factors	Risk Level	Questions & Concerns	Management Strategies
Difficulty			
Services to be Provided			
Budget Adequacy			
Schedule Adequacy			
Compatibility with firm goals			

*This table is a tool to
Identify risk and apply a
qualitative risk assessment*

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SEQUOIA AND KINGS CANYON GMP RISK ASSESSMENT - GMP Issues at Risk

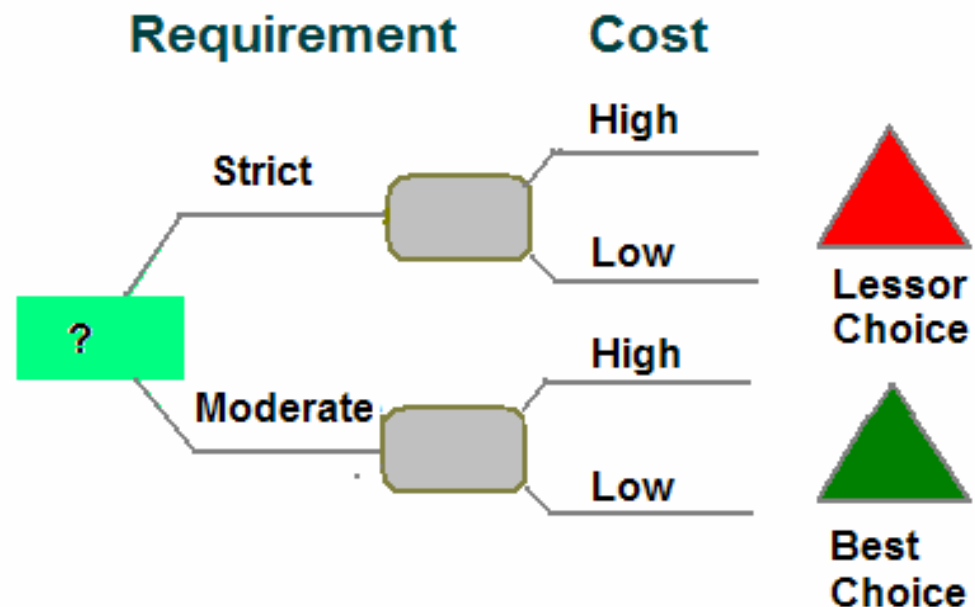
Issue related to Preferred Alternative	Interested Party	Nature of Risk	Likelihood of happening	Nature of Impact / intensity of risk	Approaches & Contingencies
Wilderness: <ul style="list-style-type: none">•management compatible with wilderness designation•exclusion study for recommended area (Hockett Plateau high sierra camp)	Wilderness society MK advocates Backcountry horsemen Congress NPS -NW SC National Wilderness Steering Committee	<ul style="list-style-type: none">•career impacts•plan could be stopped just for using wilderness words•recommended lands could be opened for other uses•RS2477 - existing claims / right of ways could open and improve roads in wilderness	<ul style="list-style-type: none">•Low•Moderately low with changes in text to refer to compatibility•Moderately low - would reverse NPS policy direction. Much land inaccessible•Unknown - could affect Colony Mill and others	<ul style="list-style-type: none">•Grade and life changing•Waste of time and taxpayer \$•Severe damage action without NEPA•Same, plus erode NPS mission	<ul style="list-style-type: none">•Explain nature of approach that we have to discuss wilderness in park over 85% designated.•New language and briefing statement - educate DOI

This assessment helped the team focus on risks of higher probability & impact



4. Be aware of more complex tools used to assess risk and manage risk

- A **decision tree** breaks down more complex risk questions to reach the best choice

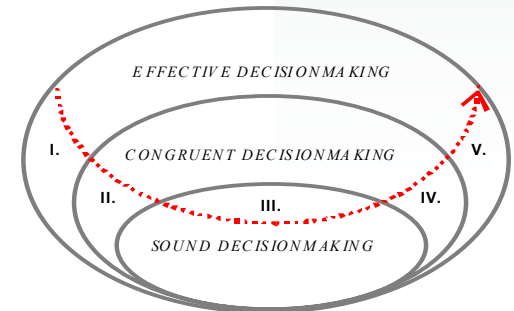
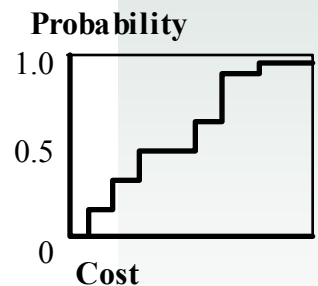
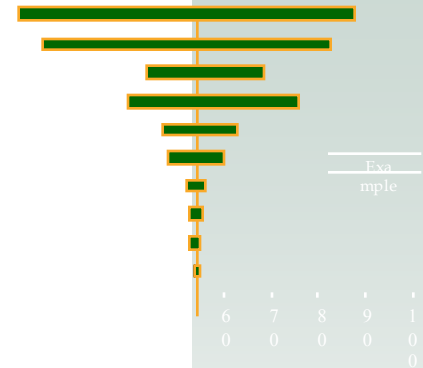


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4. Be aware of more complex tools used to assess risk and manage risk

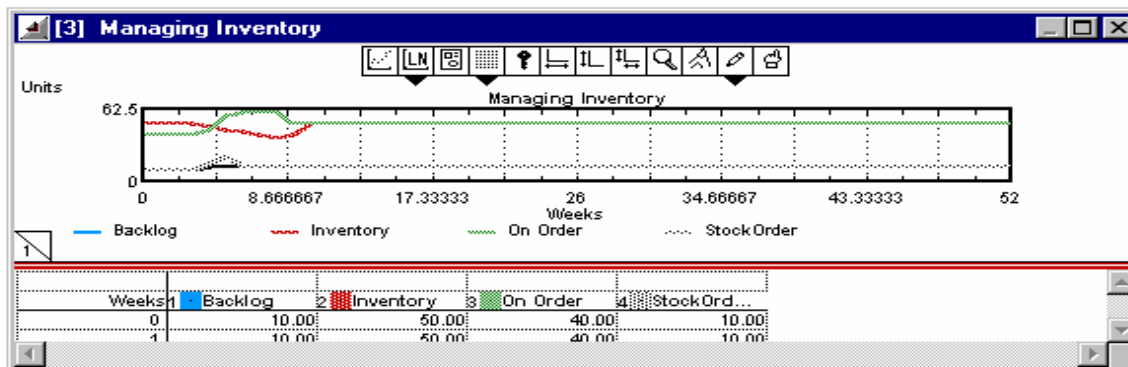
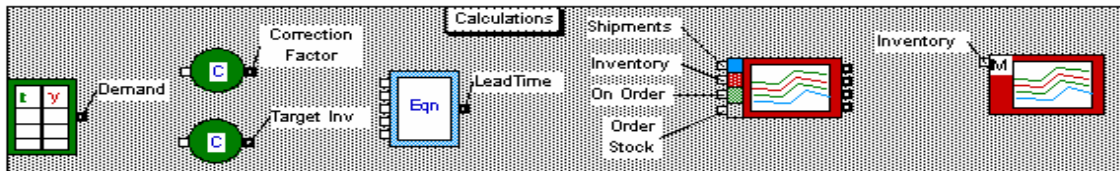
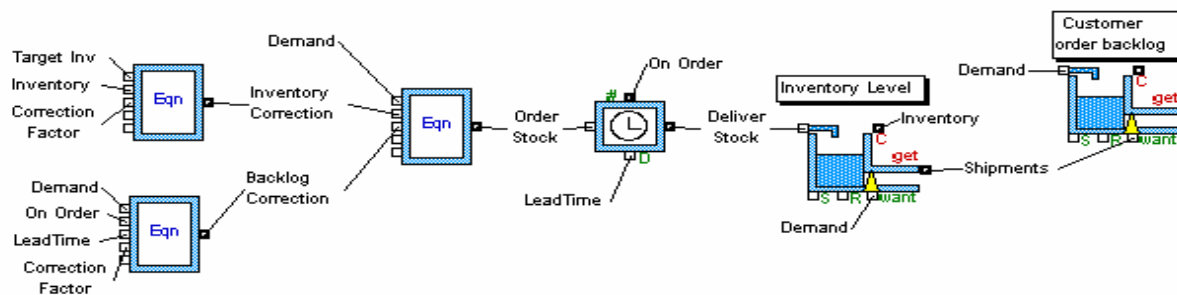
- Tornado Diagram illustrates which risks are most likely to affect the project.
- Risk Profiles Show Financial Consequences and Illustrate Cost Reduction Strategies
- Choosing by Advantage – A tool the NPS uses for value analysis and DAB alternatives



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Other Tools – Risk Software





5. Know the five basic ways to manage risk

- The American Institute of Architects identifies five basic ways to manage risk
 - **Retain it**
 - **Abate it**
 - **Allocate it**
 - **Transfer it**
 - **Avoid it**

Each way is available to each party in a contract



1. Retain it

Five Ways to Manage Risk

- Retain it – When one party alone has the ability to manage risk than it should do so. Exculpatory clauses are a typical sign of attempting to transfer risk that should be retained.
- For the A\E the responsibility for basic services should be retained by the A\E.
- For the NPS typical owner responsibilities such as disclosure, timely reviews, and consolidation of various reviewers must be the NPS's.

Stick to your strengths



2. Abate it

Five Ways to Manage Risk

- Abate it – Minimize a risk with planning or special skills.
- The A\E may hire a consultant in a technical area such as security, constructability, or material conservation. Usually increases the fee.
- The NPS may confer with an in-house specialist, or contract for a separate study in advance of the design contract. The A\E Manager may engage risk management tools.

Hire the right person



3. Allocate it

Five Ways to Manage Risk

Allocate it – The most common way to manage risk is to enter into a contract with a party. The contract defines each parties responsibilities, products, and compensation.

- In A\E contracts we allocate responsibility for professional services to the A\E, generally with a fixed fee and schedule.
- The A\E Manager must write a scope that is clear in what risk (duties) it allocates to whom.

Write good scopes of work



4. Transfer it

Five Ways to Manage Risk

Transfer it – You may choose to transfer some risk through indemnification agreements.

- The A\E may purchase errors and omissions insurance before undertaking some types of work. The A\E may seek to include clauses which transfer responsibility to other NPS contractors.
- The NPS must know what these clauses say & do. Watch for unsanctioned transfer from the A\E.

Insure or Indemnify



5. Avoid it

Five Ways to Manage Risk

Avoid it – some risks are so unpredictable or potentially costly that they shouldn't be undertaken.

- For an A\E, a project requirement outside their capability. Best examples are geo-technical and hazardous waste services.
- For the NPS most examples are visitor safety or resource damage risks. Avoidance often includes closure doing construction (Division 1 issues)

Find another solution



Risk Management Course Objectives

Through this course we have:

1. Understand the purpose and value of risk management
2. Recognize and apply risk management concepts
3. Be able to identify risk and apply a qualitative risk assessment table
4. Be aware of more complex tools used to assess risk and manage risk
5. Know the five basic ways to manage risk